REMARKS

Claims 1-39 were originally presented for examination.

In response to a restriction requirement in a prior office action, Applicants canceled claims 1-16 and 33-37.

Claims 17-32 and 38-40 were presented for examination. The Examiner rejected claims 17-32, 38 and 39; and allowed claim 40. Applicants have amended claims 17, 24, 27, 30 and 38. Applicants now request reconsideration and allowance of claims 17-32 and 38-40.

Claim Rejections - 35 USC §103

In paragraph 3 of the office action, the Examiner rejected Claims 17-24, 27-32, and 38-39 under 35 U.S.C. § 103(a) as being unpatentable over Bae et al (6,421,695 BI). The Examiner contends that Bae teaches a plurality of cores, and a means for selecting an input data block received. The Examiner admits that Bae does not disclose means for determining first partial products based on input data, first output data, and feedback data, but contents that it would be an obvious modification of Bae to do so.

Currently amended, independent claims 11, 27, and 30 now recite:

> "a first core having a first input, a second input and an output for performing forward DCT operations, the first input of the first core coupled to receive external data, and
>
> a second core having a first input, a second input and an output for performing forward DCT operations, the first input of the second core coupled to receive external data, the second input of the second core coupled to the output of the first core and the output

of the second core coupled to the second input of the first core to provide feedback data."

Currently amended, independent claim 38 recites:

"...means for selecting one of input data of the data block received and a sum of said input data and feedback data, wherein the feedback data is generated external to the means for selecting, in order to provide first output data;

coupled to the means for selecting, means for determining first partial products based on the input data, the first output data and the feedback data..."

The claims have been amended to more clearly define the claimed invention as including a plurality of cores, and a plurality of cores receiving external input data and feedback input data. This is made clear by the specific recitation of a first core and a second core and their couplings. The use of feedback according to the present invention is particularly advantageous. Utilizing the claimed features of claims 17, 27, 30, and 38 leads to an increase in the overall bandwidth of a data compression scheme and enables a higher precision of results for multiplication and addition operations, thereby improving quality of the DCT and IDCT calculations, as mentioned on page 34 of the specification. The use of feedback also allows the multiplication operations to be replaced with lookup tables and addition operations, so long as the feedback from one core in the plurality can be used in the partial product sums of other cores (e.g. feedback). Also, the claimed structure of claims 17, 27, 30, and 38 is capable of performing both the functions of DCT and IDCT (DCT/IDCT) using the same hardware architecture. Accordingly, the hardware design of the DCT/IDCT module reduces the hardware required by such an architecture in about

half. This is particularly useful for VLSI, SoC and ASIC applications, which typically have increasingly small "real-estate," meaning chip area and size.

To the contrary, Bae discloses a complex digital image processing system that relies on inverse discrete cosine transformation (IDCT) in order to manipulate digital image data. In particular, Figures 3 and 9 disclose a conventional processing system reliant upon two IDCT cores that individually perform a data compression algorithm on an input set of data. However, Bae does not disclose a plurality of cores, each having input data and output data, wherein the input data for each core includes external data and feedback data, the feedback data selected from the output data of one of the cores (emphasis added), or the specifically recited structure and coupling of first core and a second core as now recited in claims 17, 27 and 30. Bae simply discloses, in column 6, lines 38-42, an internal feedback loop within a single IDCT core for generating an accumulation of data to be used in subsequent iterations of the data processing scheme. This internal feedback data within a single IDCT core of Bae is not the feedback data selected from the output data of one of the cores of the claimed invention. In fact, Bae is absent any teaching or suggestion of using feedback from one core to another as now specificly recited with the "the output of the second core coupled to the second input of the first core to provide feedback data".

Therefore, independent claims 17, 27, and 30 and dependent claims 18-26, 28, 29, 31, and 32 are considered patentably distinct over the prior of record, and now in a condition for allowance.

Regarding independent claim 38, Bae does not disclose a means for selecting one of input data of the data block received and a sum of said input data and feedback data, wherein the feedback data is generated external to the means for selecting, in order to provide first output

data. In the case that element 200 (Fig. 3) of Bae is construed as a means for selecting an input, element 200 does not provide a first output based on input data and feedback data, wherein the feedback data is generated external to the means for selecting. Bae simply discloses, in column 4, lines 19-32, a data processing scheme with an internal data feedback mechanism where input data is processed by element 200 and stored in element 300 for feedback at a later date. The feedback data in Bae is stored externally in element 300, however, the feedback data is strictly generated internally at element 230. Bae is completely silent regarding utilizing feedback data generated external to the means for selecting.

Furthermore, even if the feedback data of Bae can be construed to be generated external to the means for selecting, Bae does not disclose a means for determining a first partial product based on the input data, output data, and the feedback data. Element 220 of Bae simply performs, as disclosed in column 5, lines 40-45, a basic multiplication of input data and a selection element from a particular column of a selection matrix such that the incoming data is appropriately formatted for compression. Bae does not disclose determining a partial product based on input data and output data, much less a partial product based on input data, output data, and feedback data, as recited in claim 38.

For at least these reasons, independent claim 38 and dependent claim 39 are considered allowable over the prior of record.

Conclusion

In view of the foregoing arguments, Applicants respectfully submit that the claims presently in this case are now in condition for allowance. Reconsideration and prompt favorable action are therefore solicited.

In addition, Applicants respectfully invite the Examiner to contact Applicants' representative at the number provided below if the Examiner believes it will help expedite furtherance of this application.

Respectfully submitted,
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